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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
CROSS, LATOYA I	

ART UNIT	PAPER NUMBER
1743	

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/881,052	LEBL ET AL.	
	Examiner	Art Unit	
	LaToya I. Cross	1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 August 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *32-76 and 89-94* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *32-76 and 89-94* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to Applicants' amendments filed on August 23, 2004. Claims 32-76 and 89-94 are pending.

Withdrawal of Rejections from Previous Office Action

- All claim objections and rejection under 35 USC 112 are withdrawn in view of Applicants' corrections and explanation of where support the claimed limitations is found in the specification.
- The anticipation rejection over Rokugawa is withdrawn in view of Applicants' cancellation of the rejected claims.
- The anticipation rejections over American Hospital Supply Corporation, Jovanovich et al, and Lebl are withdrawn in view of Applicants' amendment to recite, "valved dispensing nozzles".

Drawings

The Examiner appreciates Applicants' explanation of the pertinent parts of the specification with respect to the drawings. All previous drawing objections are withdrawn.

Terminal Disclaimer

1. The terminal disclaimer filed on August 23, 2004 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US patent 6,663,832 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 32, 34-36, 38, 40, 44-46, 58, 59, 63, 65-70, 89-94 are rejected under 35 U.S.C. 102(b) as being anticipated by Huber (US 4,042,338).

Huber discloses an apparatus for dispensing liquids into a reaction vessel (figs. 1-4). The apparatus comprise a rotor (10), motor (16), liquid dispenser (24), and controller (18) (fig. 3; col. 3, lines 36-41). The rotor is mounted for rotation about a central axis (fig. 3). The rotor carries an array of reaction vessels (12) along a circular path (col. 3, lines 36-41). The motor rotates the rotor about a central axis and moves the array of reaction vessels along a circular path (fig. 3; col. 5, line 47-col. 6, line 51). The liquid dispenser is a multi-channel dispenser with a plurality of dispensing nozzles (62) (fig. 3). The liquid dispenser is fluidly coupled with different reagent sources in different containers (40A-40C). The liquid dispenser is positioned above the rotor and arranged for movement to align the dispensing nozzles with the plurality of reaction vessels and dispensing liquid from each nozzle into a respective reaction vessel (col. 6, lines 9-51). A plurality of linear actuators are operably connected to the liquid dispenser and controlled by the controller (fig. 3; col. 5, line 46-col. 6, line 51). The controller is configured to actuate the linear actuators to move the plurality of dispensing nozzles from a first upper position to a second upper position (fig. 3; col. 5, line 46-col. 6, line 51). A rotary actuator (66) is operably connected to the liquid dispenser and controlled by the controller (fig. 3; col. 5, line 46-col. 6, line 51). The controller is configured actuate the rotary actuators to move the

plurality of dispensing nozzles (fig. 3; col. 5, line 46-col. 6, line 51). The plurality of dispensing nozzles is linearly arranged in a pattern corresponding to a radial column of 3 reaction vessels of the array of reaction vessels (fig. 3). Specifically, the embodiment of fig. 3 discloses that the plurality of nozzles move from a first upper position to a second upper position, such that each nozzle is arranged above a reaction vessel (col. 6, lines 9-51). Each nozzle comprises a dispensing valve (56,58) for controlling liquid delivery thereto (fig. 3; col. 6, lines 9-51). The controller is configured to simultaneously synchronize movement of the rotor and the liquid dispenser and control of the dispensing valves since it discloses that a controller synchronizes the various operations (col. 3, lines 36-41; col. 5, line 47-col. 6, line 51). The apparatus is configured for chemical and oligomer synthesis (abstract).

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 37, 38, 40, 61, 62, 64, 65, and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huber.

Although Huber does not explicitly disclose that the dispensing valves are electric solenoid valves, there is a good chance that they are electric solenoid valves since the system is electrically controlled. Regardless, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use electric solenoid valves since they are very well known in precision dispensing.

Although Huber does not explicitly disclose the step of performing chemical synthesis in at least one of the reaction vessel, particularly synthesis of oligomers, there is a good chance

that byproducts may be formed in performing flameless atomic absorption spectroscopy such that it may be considered a synthesis. Regardless, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the apparatus of Huber to perform chemical synthesis, particularly synthesis of oligomers as necessary or desired since it is very well known to efficiently perform synthesis in such automatic devices.

Although Huber does not explicitly disclose linear and rotary actuators in those exact terms, it highly likely that linear and rotary actuators are behind the vertical and rotating movement of the liquid dispenser. Regardless, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Huber to provide linear and rotary actuators since they are very well known to provide movement to the liquid dispenser.

6. Claims 33, 39, 41-43, 60, 71 and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huber in view of American Hospital Supply Corporation (US 1,241,539).

The disclosure of Huber is described above.

Huber fails to teach a liquid dispenser head arrange for movement along a part of the circular path or a controller configured to actuate nozzles and dispense fluid during said dispenser movement.

American Hospital Supply Corporation discloses an apparatus (10) for dispensing liquids into a reaction vessel (26) (figs. 1-9). The apparatus comprises of a rotor (13,19), liquid dispenser (12,31,39), and controller (36) (figs. 1-9). The rotor is mounted for rotation about a central axis (figs. 1-9; page 3, line 123-page 4, line 2). The rotor carries an array of reaction vessels (26) along a circular path (figs. 1-9; page 3, line 123-page 4, line 2). The liquid

dispenser includes a plurality of dispensing nozzles (48) each with its own channels, such that the liquid dispenser may be considered a multi-channel dispenser (figs. 1-9). The liquid dispenser is positioned above the rotor and simultaneously moves with the rotor along the same circular path to align the dispensing nozzles with a plurality of reaction vessels and dispense liquid from each dispensing nozzle into a respective reaction vessel (figs. 1-9; page 3, line 123-page 4, line 2). The controller synchronizes the liquid dispenser and the rotor such that two or more of the plurality of dispensing nozzles each dispense liquid into two or more respective reaction vessels simultaneously (figs. 1-9; page 2, line 119-page 3, line 24). The controller is configured to actuate the nozzles and dispense fluid while the rotor and dispenser head is moving along the circular path (figs. 1-9; page 3, lines 9-25; page 3, line 123-page 4, line 95).

It would have been obvious to one of ordinary skill in the art to have the liquid dispenser head to move along the same circular path as the reaction vessels so that the reaction vessels are aligned with the liquid dispenser for ease in dispensing the liquid into the reaction vessel. Further, it would have been obvious to have the controller to control such movement, so that the process can take place automatically and without user intervention, which may cause errors.

7. Claims 47-49, and 73-75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huber in view of Brennan (US 5,472,672).

The disclosure of Huber is described above.

Huber fails to teach a first and second set of dispensing nozzles and the method for delivering liquid to the first and second set of dispensing nozzles.

However, it would have been obvious to modify the apparatus of Huber to provide first and second sets of nozzles for dispensing first and second liquids, respectively, to efficiently supply the different reagents, solutions, or solvents to complete a process as taught by Brennan. Brennan teaches sequentially actuating the first and second sets of nozzles since a certain bank or row of wells may require the first liquid but not the second liquid (fig. 3). Brennan teaches simultaneously actuating the first and second sets of nozzles to flush air and water traces from the head space of the chamber with inert gas (fig. 5; col. 9, lines 34-55). Further, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Huber to provide each reaction vessel with an egress aperture and liquid aspirator for aspirating liquid through the egress aperture to better facilitating draining and cleaning the reaction vessels as taught by Brennan.

8. Claims 50, 51 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huber in view of Yamada (US 4,837,159).

The disclosure of Huber is described above.

Huber fails to teach an ingress aperture and an egress aperture for taking in and aspirating liquid out.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Huber to provide each reaction vessel with an egress aperture and liquid aspirator for aspirating liquid through the egress aperture to better facilitating draining and cleaning the reaction vessels as taught by Yamada (figs. 4A-4D and 7A-C).

9. Claim 52-57 and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huber in view of Yamada and further in view of Lebl (WO 99/25470).

The disclosures of Huber and Yamada are described above.

Both Huber and Yamada fail to teach an adjustment mechanism and the reaction vessel being a microtiter plate.

Lebl discloses that the reaction vessel array is a microtiter plate and an adjustment mechanism for adjusting the angle of the vessel relative to the horizontal plane in response to the centrifugal force generated by orbiting the vessel about the axis of rotation (page 17, line 30-page 19, line 9). It would have been obvious to one of ordinary skill in the art to incorporate an adjustment mechanism into the apparatus of Huber to respond to the centrifugal force generating by spinning the vessels and better control the vessels and contents.

Response to Arguments

10. Applicant's arguments filed August 23 have been fully considered but they are not persuasive. In response to the rejection over Huber, Applicants argue that Huber fails to teach a controller for moving the liquid dispenser head and for synchronizing the liquid dispenser head and rotor. Huber does teach a controller for controlling the various functions of the apparatus including the rotor and motor. Since the claims the claims are directed to an apparatus, the specific function of the controller to control movement of the liquid dispenser head, is not sufficiently limiting to impart patentability to the claims. Apparatus claims are defined by their structure and not their function. See MPEP 2114. It is the position of the Examiner that the controller of Huber would be capable of controlling all operations of the device.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LaToya I. Cross whose telephone number is 571-272-1256. The examiner can normally be reached on Monday-Friday 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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